

11' AND 120' INDEX										100 AND 114' INDEX									
PROCESS AND PROPERTIES INDEX																			
Viscosity of nonalkaline glasses. P. P. Ushchikov and H. V. Rabinovich: <i>Ann. Nakh S.S.S.R. (U.S.S.R. Acad. Sci. Div. Phys. Math. Sci.)</i>, 1961, 1, 255-7 (1961).—<i>Study of Liquids and Colloidal Solns.</i> 1, 255-7 (1961).—The glasses investigated are used in the manufacture of high-temperature Na-vapor bulbs. Viscosity, η, were determined between 480° and 1280° with a rotating-cylinder viscometer for 4 typical glasses all containing B_2O_3, SiO_2, Al_2O_3, Na_2O, CaO 6.0, Na_2O 5.0%; furthermore, the K_2O and MgO contents, resp., were: (I) 12.0, 0.0; (II) 8.0, 4.0; (III) 4.0, 8.0; (IV) 0.0, 12.0%. For comparison, a silicate glass "BD-1", SiO_2 60.5, CaO 5.5, MgO 3.5, Na_2O 5.5, K_2O 4.0, Na_2O 12.5%, was measured and, Volerovich's data for pure B_2O_3 and $Na_2B_4O_7$ were added. Data figures for log η at 500°, 700°, 900° resp., for glasses I, II, III, IV, and BD-1, B_2O_3 and $Na_2B_4O_7$ are: 11.3, 11.0, 11.0, 13.1, 4.5, 9.4; 4.6, 4.2, 4.1, 4.3, 7.3, 2.9, 2.4; 2.2, 2.0, 1.9, 2.0, 4.9, 2.2, 0.8. Temp. intervals corresponding to a doubling of η are, for the above-named glasses, in the same order: 6.5, 6.3, 6.2, 5.7, 9.8, 6.9, 5.4°. All log η-temp. curves have the same shape, rising steeply with falling temp., with the exception of the curve of B_2O_3 which runs much more smoothly; below 680°, log η values for B_2O_3 are higher than those of $Na_2B_4O_7$; the two curves intersect at 680°, after which the B_2O_3 curve runs above that of $Na_2B_4O_7$. Plots of lines of equal η in the system temp. against K_2O (Na_2O) content (isocomes) represent a series of nearly parallel curves with a slight min. The difference in temp. between extreme glasses (I and IV) for $\eta = 10^9$ is about +25°; for the $\eta = 10^{11}$ isocomes, about -10°; in the latter case, the K glass attains the same η at a somewhat lower temp. than the Na glass, contrary to what occurs in silicate glasses. In a general way, exchange of Na_2O for K_2O affects η of non-silicate glasses much less than in the case of silicate glasses. N. Thon																			
A50-SLA METALLURGICAL LITERATURE CLASSIFICATION										FROM 000100									
FROM 000100										FROM 000100									

RABINOVICH, B.V.

"The Viscosity of Borax and Boric Anhydride in the Internal of Softening", Zhur. Fiz. Khim. 16, Nos. 1-2, 1942. Received 3 Feb. 1941.

Report U-1523, 24 Oct. 1951.

KOROLEV, N.I.; KONSTANTINOV, I.S., kandidat tekhnicheskikh nauk, retsenzent;
RABINOVICH, B.V., kandidat tekhnicheskikh nauk, redaktor; TIKHONOV,
A.Ya., tekhnicheskii redaktor; MOISEL', B.I., tekhnicheskii redaktor.

[Technology of cast iron production] Tekhnologiya chugunoliteinogo
proizvodstva. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit. lit-ry,
1951. 219 p. [Microfilm] (MLRA 7:12)
(Cast iron)

RABINOVICH, B. V.

USSR/Metals - Casting, Molds

Mar 51

"Certain Physical Phenomena in Pouring Gates," B. V. Rabinovich, Cand Tech Sci, MAMI (Moscow Automotive Mechanics Inst)

"Litey Proizvod" No 3, pp 19-24

Cites several problems: conditions for incomplete filling of the riser with metal, formation of a hollow whirlpool (air funnel) due to circulation of metal in pouring basin, effect of the mold gas-permeability and riser geometry on distribution of pressures, chucking and rational geometry of the riser.

195T52

PA 195T52

RABINOVICH, B. V.

PA 196160

USSR/Engineering - Foundry, Equipment Jun 51

"Thin-Walled Molds," B. V. Rabinovich, Cast Steel
Sov. Moscow Automotive Mechanics Inst

"Literary Proizvod" No 6, pp 26, 27

Suggests a type of mold which would combine the
advantages of both permanent and sand molds, at
the same time eliminating shortcomings. Inner
surface of metal mold has enlarged shape of
pattern. There is thus a 5-10 mm gap which is
filled out with molding sand blown through holes
made in a pattern plate along the perimeter of

196160

USSR/Engineering - Foundry, Equipment Jun 51
(Contd)

pattern. This type of mold gives a higher
precision of castings and offers possibility
for controlling cooling rate by changing
thickness of metal wall or sand layer.

196160

1. RABINOVICH, B. V. (and others)
2. USSR (600)
4. Sewing Machines
7. Molding systems that have a throttle. Lit. proizv. No. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

Rabinovich, B. V.

met ✓ Casting Automobile and Tractor Sleeves in Thin-Walled
Moulds. P. N. Aksenov, G. D. Vasil'ev, A. S. Eracov, and
B. V. Rabinovich. (Leningrad: *Proizvodstvo*, 1953, (9), 1-6).
(in Russian). Details are given of the production of sleeves
for internal combustion engines by B. V. Rabinovich's method
of casting in metal moulds faced with a thin layer of refractory
material. For this, a sand-clay-coal mixture is applied by
means of a blast at 6 atm. pressure. Temperature distribution
in the casting, refractory layer and mould is considered, and
curves are given for various thicknesses of these. The micro-
structure of castings obtained is compared with those pro-
duced centrifugally and a wide range of possible applica-
tions for steel and cast iron is claimed for the new method.
Improvements in the process at present being investigated are
outlined.—S. K.

4

RABINOVICH, B. V.

7637. RABINOVICH, B. V. -- Litnikovyye sistemy dlya chugunnogo lit'ya. L., 1954.
21 s. s chert. 22 sm. (vsesoyuz. o-vo po rasprostraneniyu polit. i nauch.
znaniy. Leningr. dom nauch. -tekhn. propagandy. Leningr. otd-niye vsesoyuz.
inzh.--tekhn. o-va liteyshchikov. Inform. - tekhn. listok. No. 114
(687). 3.800 økz. 65 k. -- avt ukazan v kontse teksta. -- (55-15983zh)
621.746.4

SO: Knizhnaya Letopis', Vol. 7, 1955

U S S R .

Theory of Slag-Trap Design. B. V. Rabinovich. (*Litiznoe Proizvolstvo*, 1954, (1), 18-20). [In Russian]. The conditions facilitating the flotation and trapping of light particles contained in a heavy liquid are considered for a relatively quiescent and a moving liquid. The designs of a number of existing and proposed slag traps are critically examined. The following factors promote effective slag removal with reasonably compact traps: Reduction of Reynolds number and turbulent mixing by decreasing hydraulic radius or velocity; reduction of the critical suspension velocity by increasing the cross-section of the trap; increased lifting force and rate of flotation of particles through inertia forces, by successive acceleration and deceleration of the stream.--B. K.

77 BZ

RABINOVICH, B.V.

ZHIRYAKOV, N.I.; LESYUK, B.Z.; RABINOVICH, B.V.; SOZAYEV, S.M.; FEYGIN, V.I.

Automatic control in the production of zinc. Tsvet. met. 27 no.1:
30-41 Ja-F '54. (MIRA 10:9)

(Automatic control) (Zinc--Metallurgy)

FANTALOV, L.I., doktor tekhnicheskikh nauk; RABINOVICH, B.V., kandidat tekhnicheskikh nauk.

The hydrodynamics of molten metal (conference at the Institute of Machinery Engineering). Vest. AN SSSR 25 no.4:95-99 Ap '55.
(Metallurgy) (MIRA 8:7)

VASILEVSKIY, P.F.; RABINOVICH, B.V., kandidat tekhnicheskikh nauk, retsenzent;
KRYLOV, V.I., inzhener, redaktor; POPOVA, S.M., tekhnicheskii redaktor.

[Systems of pouring steel castings] Litnikovye sistemy stal'nykh
otlivok. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry.1956.
160 p. (Steel castings) (MLRA 9:5)

R71
ACHERKAN, N.S., zasluzhennyy deystel' nauki i tekhniki, red.; BOGUSLAVSKIY, B.L., prof. red.; GLIZMANENKO, D.L., kand.tekhn.nauk, red.; RABINOVICH, B.V., kand.tekhn.nauk, red.; SASOV, V.V., kand.tekhn.nauk, red.; STANOVICH, V.G., inzh., red.; STOROZHEV, M.V., kand.tekhn.nauk, red.; GOKUNA, V.B., red.; SOKOLOVA, T.P., tekhn.red.

[Present-day trends in the manufacturing of engineering equipment; a collection] Sovremennye napravleniya v oblasti konstruirovaniya tekhnologicheskogo oborudovaniya; sbornik. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1957. 265 p. (MIRA 11:2)
(Machine tools)

Prilozhenie 4, B.V.
GOKUN, B.V., redaktor; ACHERKAN, N.S., zasluzhennyy deyatel' nauki i
tekhniki, redaktor; BOGUSLAVSKIY, B.L., professor, redaktor;
GLIZMANENKO, D.L., kandidat tekhnicheskikh nauk, redaktor;
~~BARINOV, I.S., kandidat tekhnicheskikh nauk, redaktor;~~
RAKHSHTADT, A.G., kandidat tekhnicheskikh nauk, redaktor;
SASOV, V.V., kandidat tekhnicheskikh nauk, redaktor; STOROZHEV, M.V.,
kandidat tekhnicheskikh nauk, redaktor; SOKOLOVA, T.F., tekhnicheskii
redaktor.

[Present-day trends in machine manufacturing; a collection of
articles] Sovremennye napravleniya v oblasti tekhnologii mashino-
stroeniya; sbornik. Moskva, Gos.nauchno-tekhn.isd-vo mashinostroit.
lit-ry, 1957. 363 p. (MIRA 10:11)

(Machine industry)

Rabinovich, B.V.
ACHERKIN, N.S., zasluzhennyy deyatel' nauki i tekhniki, redaktor; GLIZMA-
NENKO, D.L., kandidat tekhnicheskikh nauk, redaktor; RABINOVICH
B.V., kandidat tekhnicheskikh nauk, redaktor; STANKEVICH, V.G.,
inzhener, redaktor; STOROZHEV, M.V., kandidat tekhnicheskikh nauk,
redaktor; GOKUN, V.B., redaktor; BARYKOVA, G.I., redaktor
izdatel'stva; SOKOLOVA, T.F., tekhnicheskiiy redaktor

[Problems of increasing labor productivity in the machinery industry;
a collection of articles] Voprosy povysheniia proizvoditel'nosti
truda v mashinostroenii; sbornik. Moskva, Gos. nauchno-tekhn. izd-
vo mashinostroit. lit-ry, 1957. 510 p. (MIRA 10:11)

.(Machinery industry) (Labor productivity)

RABINOVICH, B.V., kandidat tekhnicheskikh nauk.

Gating systems with choke. Lit. proizv. no.3:4-9 Mr '57.
(Foundry machinery and supplies) (MLRA 10:4)

TRICH, B.V., kandidat tekhnicheskikh nauk.

Automatic sandblast molding machines. Mashinostroitel' no. 3:12-16
Mg '57. (Molding machines) (MIRA 10:5)

RABINOVICH, B.V.

150) NAME : NAME SURNAME : 000/1705

[illegible]

Российская академия Литературы имени Пушкина (Advanced Technology of Casting Production) М.: Вузов. Механика. 1998. 152 с. 6,000 копеек вкл.

M.: V. L. Goryun; Sub. M.: Zh. V. Rubinsky; Material Board: A. B. Arsenov,
 L. I. Vashchenko (exp. M.), S. Sh. Zaklavsky, and B. V. Polyak; Chief Ed.
 Gubkov Miriam. Moshin; V. L. Goryun, Designer.

REMARKS: This book is intended for engineering personnel of factories, and workers of industrial research laboratories.

[illegible]

DATE OF COMPLETION: SEP/1705

✓Sperov, D. I., Engineer. Use of Permanent Molds in the Casting of
Steel

Ростов, В. В., Инженер: Чертежно-Конструкторские

PERMARE, G. E., Engineer. Mechanical Welding of Large Steel Castings

—Cavillor, V. E., Engineer. Bottom-seat Fasteners Holding

Snyder, V. V., Engineer. Was of Committee as an Anti-Offending Agent in Casting of Large-sectioned Steel and Cast Iron

Myke, E. H., Committee of Technical Witnesses. Casting in Quicksilvering Machine

Chelisevich, B. V., Candidate of Technical Sciences. Engineer, and
A. I. Kobayev, Engineer. Results of Investigation and Introduction
 of Swirlable Gassing Systems in Mass Production.

2014

Figure 1. The effect of the α -factor on the β -factor. The α -factor is the ratio of the number of β -factors to the number of α -factors. The β -factor is the ratio of the number of β -factors to the number of α -factors. The α -factor is the ratio of the number of β -factors to the number of α -factors. The β -factor is the ratio of the number of β -factors to the number of α -factors.

Downloaded from <http://ajph.org/> on November 10, 2015

RABINOVICH, B. V.

"Subject and Problems of Hydraulics of Molten Metals."

Hydrodynamics of Molten Metals (Gidrodinamika rasplavlennykh metalov; trudy pervogo soveshchaniia po teorii liteinykh protsessov. Moskva, Izd-vo Akad. nauk SSSR, 1958, 257 pp.

(Proceedings of the First Conference on the Theory of Casting Processes)

Moscow Auto-Mechanical Institute

RABINOVICH, B. V.

- Solidification of Metals ; (~~Book~~) Trans. of 2nd Conf. on ~~the~~ Theory of Foundry Processes, (1956); Moscow, Mashgiz, 1958, 532pp.
- Chukhrov, M.V., Candidate of Technical Sciences. Investigation of the Process of Crystallization of Magnesium-alloy Ingots 413
- Rabinovich, B.V., Candidate of Technical Sciences. Experimental Investigation of the Solidification of White-Iron Ingots and the Determination of the Dimensions of Side Risers 428
- Korol'kov, P.M., Candidate of Technical Sciences. Effect of Alloy Composition on Shrinkage Phenomena and Crack Formation in the Solidification of Castings 446
- Neymark, V.Ye., Candidate of Technical Sciences. Obtaining Cast Products by the Vacuum-Crystallization Method 465
- Smirnova, K.N., Engineer. Production of Steel Blanks by Compression During the Crystallization Process 480
- Medvedev, Ya.I., Engineer. Formation of Cold Shuts in Heavy Castings and Calculation of the Metal-pouring Rate 484

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Resolution of the Conference on the Problem of Metal Solidification at the Institutes of Machine Engineering and Metallurgy of the Academy of Sciences of the USSR	529
AVAILABLE: Library of Congress	

GO/nah
2-24-59

Card 8/8

RABINOVICH, B. V.

AUTHOR: Rabinovich, B.V., Candidate of Technical Sciences 128-58-4-14/18

TITLE: Pressure Control in Runner Systems (Kontrol' davleniya v litnikovykh sistemakh)

PERIODICAL: Liteynoye Proizvodstvo, 1958, No. 4, pp 26-28 (USSR)

ABSTRACT: This is a review of the pamphlet "New Devices for Control and Investigation of Processes in Runner Systems in the Process of Pouring in Large Molds", by V.I. Fundator (USSR Academy of Sciences, Institute of Technico-Economic Information. Periodical Information, Theme No. 19, No.K-55-99, 1955)
There are 5 figures and 7 references, 6 of which are Soviet and 1 Polish.

AVAILABLE: Library of Congress

Card 1/1 1. Industrial engineering 2. Molding devices-Pouring

SOV/136-58-6-5/21

AUTHORS: Rabinovich, B.V. and Sevumyan, Yu.R.

TITLE: Automatic Regulation of the Current to the Electrolytic Line in the Aluminium and Zinc Industry (Avtomaticheskoye regulirovaniye toka serii elektroliza v alyuminiyevoy i tsinkovoy promyshlennosti)

PERIODICAL: Tsvetnyye Metally, 1958, Nr 6, pp 30 - 33 (USSR)

ABSTRACT: It is difficult to control manually the current strength to aluminium and especially zinc electrolyzers to the 1-2% accuracy desirable. The KB Tsvetmetavtomatika have developed two types of regulator; type ARTS-1010 automatic current-regulator for the line and an individual current regulator, type ARTV-1005m, for the mercury rectifier. In the ARTS-1010 (Figures 1 and 2), the transducer of the current is a direct-current measuring transformer which gives a signal proportional to the line current to a unit where it is compared with the desired value current. The out-of-balance signal is amplified and affects three phase-shift chokes in series with the phases of the circuit transformers of all the mercury rectifiers of the line. The other regulator is the same

Card 1/2

SOV/136-58-6-5/21

Automatic Regulation of the Current to the Electrolytic Line in the Aluminium and Zinc Industry

in principle except that the current transducer is a measuring shunt in the cathode circuit of the mercury rectifier. The regulators described have been adopted at the "Elektrotsink" Works and on several lines at the Bogalovskiy and Sumgaitskiy Works, where they secure current constancy to $\pm 1\%$ (typical traces of current strength) for manual and automatic regulation - aluminium (Figure 3) and zinc (Figure 4). The authors suggest that the regulators should find wide industrial application. There are 4 figures.

ASSOCIATION: KB Tsvetmetavtomatika

Card 2/2

FEYGIN, Viktor Iosifovich; LEVITANSKIY, B.A., inzh., retsenzent;
RABINOVICH, B.V., red.; KISELEVA, T.I., insh., red.izd-va;
ISLENT'YEVA, P.O., tekhn.red.

[Electronic instruments in metallurgy] Elektronnye pribory
v metallurgii. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po
chernoi i tsvetnoi metallurgii, 1959. 221 p. (MIRA 12:8)
(Electronic instruments) (Metallurgy)

Lab. Novich, R.V.

28(1) PHASE I BOOK EXPLOITATION SOV/2156
Soveshchaniye po kompleksoy mekhanizatsii i avtomatizatsii
tehnologicheskikh protsessov. 2nd, 1956.
Avtomatizatsiya mashinostroitel'nykh protsessov: Sbornik
soveshchaniya, tom. 1. Goryachiy, A.A. et al. (Eds.).
(Automation of Machine-Building Processes: Proceedings of the
Conference on Over-All Mechanization and Automation of Technol-
ogical Processes, Vol. 1. Hot Metal-Forming) Moscow, 1959. 394 p.
5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya.
Komissiya po tekhnologii mashinostroyeniya.

Resp. Ed.: V.I. Dikushin, Academician; Compiler: V.M. Raskatov;
Ed. of Publishing House: V.A. Kotov; Tech. Ed.: I.P. Nus'min.

PURPOSE: The book is intended for mechanical engineers and
metallurgists.

COVERAGE: The transactions of the Second Conference on the Over-All
Mechanization and Automation of Industrial Processes,
September 25-29, 1956, have been published in three volumes. This
book, Vol. I, contains articles under the general title, Hot
Working of Metals. The investigations described in the book were
conducted by the Sections for Automation and Hot Working of Metals,
under the direction of the following scientists: casting: A.I.
P.M. Arsenov, D.P. Ivanov and G.M. Orlov; forming: A.I.
A.D. Tolstov and V.P. Moshchertin; welding: G.A. Nikolayev,
B.I. Prolov and G.A. Malov. There are 185 references: 142
Soviet, 34 English, 6 German, and 1 French.

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PART II. AUTOMATION OF METAL FORMING UNDER PRESSURE

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Card 4/8

VOIKOMICH, Aleksandr Iosifovich; LAKSHIN, Abram Petrovich; KHAZIM,
David L'vovich; CHUNAYEV, M.V., kand.tekhn.nauk, retsentsent;
RABINOVICH, B.V., kand.tekhn.nauk, red.; TIKHANOV, A.Ya.,
tekhn.red.

[Foundry machinery] Liteinye mashiny. Moskva, Gos.nauchno-tekhn.
izd-vo mashinostroit.lit-ry, 1959. 464 p. (MIRA 12:5)
(Foundry machinery and supplies)

BUGACHEV, V.M., kand.tekhn.nauk, red.; IVANOV, D.P., doktor tekhn.nauk, nauchnyy red.; RABINOVICH, B.V., kand.tekhn.nauk, nauchnyy red.; MARIYENBAKH, L.M., doktor tekhn.nauk, nauchnyy red.; KRESHCHANOVSKIY, N.S., kand.tekhn.nauk, nauchnyy red.; SMIRNOVA, G.V., tekhn.red.

[Foundry practice; research and experiments] Liteinoe proizvodstvo: nauchno-issledovatel'skie i opytnye raboty. Trudy Vsesoiuznogo soveshchaniya. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1960. 250 p. (MIRA 13:10)

1. Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Liteynaya sektsiya.
(Founding)

RABINOVICH, B. V.

PHASE I BOOK EXPLOITATION

SOV/4666

Voprosy teorii liteynykh protsessov (Problems of the Theory of Founding Processes) Moscow, Mashgiz, 1960. 692 p. 4,500 copies printed.

Sponsoring Agencies: Liteynyye kafedry i otdely Instituta liteynogo proizvodstva AN USSR; Minskogo fiziko-tekhnicheskogo instituta AN BSSR; Moskovskogo avtodorozhnogo instituta; Moskovskogo avtomekhanicheskogo instituta; Moskovskogo vechernego mashinostroitel'nogo instituta; Instituta stali imeni Stalina; Ural'skogo politekhnicheskogo instituta imeni S. M. Kirova; Tsentral'nogo nauchno-issledovatel'skogo instituta tekhnologii i mashinostroyeniya.

Reviewers: A. A. Ryzhikov (Head, Department of Founding, Gor'kiy Polytechnic Institute), A. Ye. Krivosheyev (Head, Department of Founding, Dnepropetrovsk Polytechnic Institute), and I. Příbyl (Head, Department of Founding, Higher School of Mining, Ostrava, Czechoslovakia); Editorial Board: P. I. Vasilevskiy, A. A. Zhukov, N. I. Klochnev, L. S. Konstantinov, and Ya. C. Polyakov;

Card 1/4

Problems of the Theory (Cont.)

SOV/4666

Managing Ed. for Literature on Heavy Machine Building:
S. Ya. Golovin; Ed. of Publishing House: Yu. L. Markiz;
Tech. Ed.: A. F. Uvarova.

PURPOSE: This book is intended for technical personnel of
the founding industry.

COVERAGE: This book on founding theory is the result of the
joint efforts of metallurgical departments of various
schools of higher education and scientific research in-
stitutes. Theoretical studies and the scientific re-
search in the field of founding are summarized and dis-
cussed. This volume (first of a planned series) is de-
voted to a number of important theoretical problems of
founding dealing with molding, melting, pouring, solid-
ification of casting, the machinery used, and automation.
The terminology used in founding is also given. No
personalities are mentioned. Each chapter is accompanied
by references.

~~Card 2/4~~

Problems of the Theory (Cont.)

SOV/4666

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~~Card 3/4~~

RABINOVICH, B.V., kand.tekhn.nauk; GONCHARENKO, M.F., inzh.

Relationship between physical properties of molten cast iron and
the nature of graphite crystallization. Izv.vys.ucheb. zav.;
mashinostr. no.4:3-10 '60. (MIRA 14:4)

1. Moskovskiy avtomekhanicheskiy institut.
(Cast iron)

RABINOVICH, B.V., dotsent, kand.tekhn.nauk; BOBRYAKOV, G.I., kand.tekhn.nauk;
NIKOL'SKIY, V.M., inzh.

Investigating hydraulic resistance of molds. Izv.vys.ucheb.zav.;
mashinostr. no.4:64-72 '60. (MIRA 14:4)

1. Moskovskiy avtomekhanicheskiy institut.
(Molding (Founding))

RABINOVICH, B.V., kand.tekhn.nauk; NIKOL'SKIY, V.M., inzh.

Pouring basins for medium and large castings. Izv.vys.ucheb.zav.;
mashinostr. no.4:95-102 '60. (MIRA 14:4)

1. Moskovskiy avtomekhanicheskiy institut.
(Founding)

ANTIPENKOV, V.P.; RABINOVICH, B.V.; SEVUMYAN, Yu.R.

Using multiplying circuits for automatic determination of the
content of solids in dressing products. *Sber.mat.po avtom.*
proizv.prots.i disp. no.5:34-42 '60. (MIRA 14:4)

1. Konstruktorskoye byuro "TSvetmetavtomatika."
(Electric calculating machines)

MELIKYANTS, R.V.; RABINOVICH, B.V.

Using automatic compensators in controlling electric parameters of electrolytic series. Sbor.mat.po avtom.proizv.prets.i disp. no.5: 94-100 '60. (MIRA 14:4)

1. Konstruktorskoye byuro "TSvetmetavtomatika."
(Electronic control) (Electrolysis)

RABINOVICH, Benedikt V., REZINSKICH, F. F., PLATONOV, B. P.,

"Thin-walled sand molds"

To be submitted for the 28th International Foundry Congress, Vienna, Austria, 19-24
June 1961.

(In 1958 reported as at the Institute of Automotive Mechanics, Moscow),

ELBINGOVICH, B. V. and PABUNENIN, D. V.

"Regulation of the Rate of the Cooling of Castings in Moulds"

report presented at the 7th Conference on the Interaction of the Casting Mould and the Casting, sponsored by the Inst. of Mechanical Engineering, Acad. Sci. USSR, 25-28 January 1961.

PHASE I BOOK EXPLOITATION SOV/5458

Girshovich, Naum Grigor'yevich, Doctor of Technical Sciences, Professor, ed.

Spravochnik po chugunnomu lit'yu (Handbook on Iron Castings) 2d ed., rev. and enl. Moscow, Mashgiz, 1961. 800 p. Errata slip inserted. 16,000 copies printed.

Reviewer: P. P. Berg, Doctor of Technical Sciences, Professor; Ed.: I. A. Baranov, Engineer; Ed. of Publishing House: T. L. Leykina; Tech. Eds.: O. V. Speranskaya and P. S. Frumkin; Managing Ed. for Literature on Machine-Building Technology (Leningrad Department, Mashgiz): Ye. P. Naumov, Engineer.

PURPOSE: This handbook is intended for technical personnel at cast-iron foundries. It may also be of use to skilled workmen in foundries and students specializing in founding.

COVERAGE: The handbook contains information on basic problems in the modern manufacture of iron castings. The following are discussed: the composition and properties of the metal; the making of molds; special casting methods; the charge preparation; melting

Card-1/11

Handbook on Iron Castings

SOV/5458

and modifying the cast iron; pouring, shaking out, and cleaning of castings; heat-treatment methods; and the inspection and rejection of castings. Information on foundry equipment and on the mechanization of castings production is also presented. The authors thank Professor P. P. Berg, Doctor of Technical Sciences, and staff members of the Mosstankolit Plant, headed by the chief metallurgist G. I. Kletskin, Candidate of Technical Sciences, for their assistance. References follow each chapter. There are 287 references, mostly Soviet.

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Handbook on Iron Castings

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Card 4/11

RABINOVICH, B.V.; PLATONOV, B.P.; REZINSKIKH, F.F.

Thin-walled molds. Lit.proizv. no.7:10-14 J1 '61. (MIRA 14:7)
(Molding (Founding))

BAEUSHKIN, B.V.; RABINOVICH, B.V.

Regulating the cooling of castings in foundry molds. Lit. ~~prov.~~
no. 11:24-27 N '62. (MIRA 15:12)
(Founding) (Thermal stresses)

ACCESSION NR: AT5009811

UR/0000/64/001/000/0153/0159

AUTHOR: Antipenkov, V.P. (Moscow); Ioannisyants, V.V. (Moscow); Gorokhovskiy, L.T. (Moscow); Mol't, L.I. (Moscow); Rabinovich, B. V. (Moscow); Savumyan, Yu. R. (Moscow)

TITLE: Contactless elements with glow-discharge cold-cathode tubes

SOURCE: Vsesoyuznaya konferentsiya po avtomaticheskemu kontrolyu i metodam elektricheskikh izmereniy. 4th, Novosibirsk, 1962. Avtomaticheskii kontrol' i metody elektricheskikh izmereniy: trudy konferentsii, t. 1. Metody elektricheskikh

Elements of measurement systems). Novosibirsk, Redizdat Sib. otd. AN SSSR, 1974,
153-159

TOPIC TAGS: contactless trigger, contactless amplifier, contactless shaper,
contactless ring circuit

ABSTRACT: The development of a number of contactless elements (trigger, amplifier,
pulse shaper, ring circuit, counter) based on the Soviet-made gas-discharge cold-
cathode TKhZB tubes is reported. The elements can operate at frequencies up to
a few kc and, with some special provisions, up to a few dozen kc. Designed with
Card 1/2

ACCESSION NR: AT5009811

the above elements, these logical circuits are very briefly described: AND, NOT, NON, OR. They are operable at an anode-voltage variation of $\pm 10\%$ and bias variation of $\pm 1\%$. The above elements and circuits were used in a supervisory-control system installed at an aluminum plant; the system employs about 2500 cold-cathode tubes. Various units (some contain up to 400 tubes) tested under laboratory and industrial conditions proved to be reliable in operation. Orig. art. has: 6 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 25Sep64

NO REF SOV: 000

ENCL: 00

SUB CODE: DP, EC

OTHER: 000

Card 2/2

3

1 632-S-65 EWT(d)/EWT(m)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/EWP(b)/EWP(i) Pf-4/ps-4
 ACCESSION NR: AT5013044 JJP(c) UR/0000/64/002/000/0140/0146 31
 AUTHOR: Antipenkov, V. P. (Moscow); Goldyreva, Z. M. (Moscow); 30
 Gorokhovskiy, L. T. (Moscow); Ioannisyants, V. V. (Moscow); Mol't, L. I. B+1
 (Moscow); Rabinovich, B. V. (Moscow); Sevumyan, Yu. R. (Moscow)
 TITLE: Supervisory control machine for aluminum-making industry
 SOURCE: Vsesoyuznaya konferentsiya po avtomaticheskomu kontrolyu i metodam
 elektricheskikh izmereniy. 4th, Novosibirsk, 1962. Avtomaticheskoy kontroly i
 metody elektricheskikh izmereniy; trudy konferentsiy, t. 2: Teoriya
 ismeritel'nykh informatsionnykh sistem. Sistemy avtomaticheskogo kontrolya.
 Elektricheskiye izmereniya neelektricheskikh velichin (Automatic control and
 electrical measuring techniques; transactions of the conference. v. 2: Theory of
 information measurement systems. Automatic control systems. Electrical
 measurements of nonelectrical quantities). Novosibirsk, Radisdat Sib. otd.
 AN SSSR, 1964, 140-146
 TOPIC TAGS: supervisory control, aluminum industry / ERA-800 supervisory
 control

Card 1/3

L 63248-65

ACCESSION NR: AT5013044

ABSTRACT: An ERA-800 Soviet-made centralized automatic supervisory control machine intended for controlling one series of aluminum-electrolysis process, is described. The ERA-800 machine scans the 160-170 electrolyzers that make up the series recording their process parameters in digital form; the interpole-gap resistance R_{pp} and the integral and mean values of performance indices are recorded. The machine is designed to perform the control, 2-hr and 6-hr cycle recording, recording on operator's request, and instrumental supervision. The control includes a sequential connection to all electrolyzer sensors, regulating (on the basis of R_{pp}) those cells which deviate from the normal operation, and recording such deviate cells. In the 2-hr cycle recording, the process parameters, such as v-h, a-h, etc., are printed automatically; in the 6-hr cycle, the resistances of anodic and cathodic regions and the electrolyte temperature are also recorded. Other facilities are designed for visual monitoring and manual control of anodes. The machine has these fundamental characteristics: number of control points, 800; output signal, 0-10 v d-c; input-signal-to-digital-code conversion time, 0.2 sec; conversion error, 0.5%; recording rate, 7-8 characters per sec; supply voltage, 3-phase 220 v 50 cps; power consumption,

Cord 2/3

L 63248-65

ACCESSION NR: AT5013044

600 va. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 17Nov64

NO REF SOV: 000

ENCL: 00

OTHER: 000

SUB CODE: DP, IE

auym
Card 3/3

GAMET, J. V. ... APOLLO, F. V.

Low-temperature treatment of cast iron. Lit. review. 5:42-43
No. 164. (MIRA 13:3)

S/065/61/000/001/003/008
E030/E212

AUTHORS: Karzhev, V. I., Rabinovich, B. Ya. and Yevseyev, G. D.
TITLE: Hydrogenation of the Ethers of Synthetic Fatty Acids
PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1961, No. 1,
pp. 15-19

TEXT: The hydrogenation of the ethers of fatty acids in the range $C_{10} - C_{20}$ has been investigated, as a source of providing new surface-active agents. The methyl and butyl ethers were studied, and the acids themselves had been synthesized by oxidation from the paraffins, and then subsequently etherified. The efficiency of general conversion of the ethers was based on saponification values, and the efficiency of conversion into alcohols, on the hydroxyl numbers. The mean molecular weight of the starting material was 270, its acid value 0.4, saponification value 204, and the hydroxyl value 15. A commercial copper-chrome catalyst was used (15 gm). Hydrogenation took place around $250^{\circ}C$, under 200 atmospheres of hydrogen, and space velocities around 0.25-0.3 per hour. The reaction temperature coefficient is about 1.18 in the $230-250^{\circ}$ temperature interval, but about 1.14 in the

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S/065/61/000/001/003/008
E030/E212

Hydrogenation of the Ethers of Synthetic Fatty Acids

250-270° temperature interval. However the degree of conversion falls a few percent in raising the temperature from the 250°C optimum to 270°C, because of secondary reactions. The degree of conversion is quite insensitive to alterations in the pressure of hydrogen between 200 and 300 atmospheres. The optimum degrees of general conversion were around 98.5% and for conversion into alcohols were around 97.8%. There are 3 tables and 6 Soviet references.

ASSOCIATION: VNII NP

Card 2/2

VASYUNINA, N.A.; BALANDIN, A.A.; KARZHEV, V.I.; RABINOVICH, B.Ye.;
CHEPICO, S.V.; GRIGORYAN, Ye.S.; SLUTSKIN, R.L.

Production of glycerol and glycols by hydrogenolysis of
xylitol. Khim.prom. no.2:82-86 F '62. (MIRA 15:2)

1. Institut organicheskoy khimii AN SSSR, Vsesoyuznyy nauchno-
issledovatel'skiy institut po pererabotke nefi i gaza i polu-
cheniyu iskusstvennogo zhidkogo topliva, i MONIIGS.
(Glycerol) (Glycols)
(Xylitol)

KARZHEV, V.I.; RABINOVICH, B.Ya.; YEVSEYEV, G.D.

Catalytic reduction of 2-hydroxyadipic aldehyde to 1,2,6-hexanetriol.
Neftekhimiia 3 no.2:267-270 Mr-Apr '63. (MIRA 16:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke
nefti.

(Adipaldehyde) (Hexanetriol) (Reduction, Chemical)

RABINOVICH, B.Ya., inzh.

Improving the technology of the preparation of tar-concrete
mixes. Sbor. trud. Khab. avt-dor. inst. no.2:71-72 '62. (MIRA 13:4)

1. Khar'kovskiy avtomobil'no-dorozhnyy institut.

DARAGAN, H.S., inzh.; RABINOVICH, B.Ya., inzh.

Using coumarone resins in composed road tars. Avt.dor.1
Gos.izv. no.1861-85 '65. (MIRA 18:11)

ARSEN'YEVA, N.P., inzh; RABINOVICH, B.Yu., inzh.

Remote control by means of the RPV-52 automatic reclosure
equipment. Elek.sta. 29 no.9:81-82 S '58. (MIRA 11:11)
(Electric substations) (Remote control)

RABINOVICH, C. I.

231716

USSR/Medicine - Hematology

Aug 52

"Treatment of Severe Reactions Caused by Transfusion of Rhesus Incompatible Blood, by Means of Repeated Injections of Rhesus-Negative Blood," T. G. Solovyeva, C. I. Rabinovich, Leningrad, Therapeutic Clinic and Serol Lab, Leningrad Order of the Labor Red Banner Sci Res Inst of Blood Transfusion

"Klin Med" Vol 30, No 8, pp 86, 87

Suggests blood typing for Rh factor as a mandatory pretransfusion procedure. Describes

231716

delayed posttransfusion reaction caused by incompatibility of Rh factor. Recommends, in cases of severe reaction, bleeding the patient and repeated transfusions of Rh-neg blood.

231716

BERNSHTEYN, B.A., podpolkovnik meditsinskoy sluzhby; RABINOVICH, D.A.,
. inzh.-podpolkovnik

Cutaneous doses received by patients exposed to various examinations
in X-ray diagnosis. Voen.-med.zhur. n. 11:72-74 '64. (MIRA 18:5)

RABINOVICH, D.B., inzh.

Corrosion control of petroleum equipment. Khim.i nef. mashinostr.
no.8:14-16 Ag '65. (MIRA 18:12)

MASTROVICH, D. I.

Rabinovich, D. I., Ginsburg, S. A. and Luriy, L. I. "Recirculation of gases in boiler installations", Trudy In-ta (Odes. in-t inzhenerov nukomol. prom-sti i elevator. Kharkiv in. Stalina), Vol. II, 1948, p. 150-62, - Bibliog: 10 items.

SG: U-3042, 11 March 53, (Letopis 'nykh Statey, No. 10, 1949).

SOV/124-57-3-2928

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 3, p 42 (USSR)

AUTHOR: Rabinovich, D. I.

TITLE: Investigation of the Aerodynamics of a Furnace Chamber on the Basis of the Similarity Theory (The Theory of Dust-carrying Flows) [Issledovaniye aerodinamiki topochnoy kamery na osnove teorii podobiya (teorii zapylennykh potokov)]

PERIODICAL: Nauch.zap. Odessk. politekhn. in-ta, 1955, Nr 3, pp 3-18

ABSTRACT: The aerodynamic problems of a furnace chamber are studied as well as the separation and the carry-off of small fuel fractions. Criteria of similarity are obtained from the system of differential equations characterizing the problem, and these criteria are used to calculate the design of an airflow model of the furnace. Experimental data obtained from this model are given concerning the amount (by weight) of matter carried off, which enabled the author to draw some practical deductions. An experimental study is made of the effect of concentrated blasting on the transport of the different fractions within the model. Bibliography: 5 references.

Card 1 / 1

O. V. Yakovlevskiy

AYBINDER, M., inzh.; RABINOVICH, D., inzh.

Improved control system for power leads. Zhil.-kom.khoz. 8
no.1:26 '58. (MIRA 11:1)
(Automatic control) (Electric cables)

RABINOVICH, D.I., doktor tekhn.nauk

Design of a steam generating unit of low capacity.
Teploenergetika 7 no.7:34-39 J1 '60. (MIRA 13:7)

1. Odesskiy politekhnicheskii institut.
(Boilers--Design)

S/079/60/030/007/008/020
B001/B063

AUTHORS: Spasskova, A. I., Rabinovich, D. I.

TITLE: Investigation of the Chemical Structure of the Sponge
Polymer of Isoprene

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 7, pp. 2176-2180

TEXT: The above-mentioned polymer was obtained by the polymerization of isoprene in sealed ampoules in a nitrogen atmosphere at 15-18°C. One of the two high-molecular polymers formed in this way is rubber-like and soluble in benzene, chloroform, and other solvents, whereas the other polymer - the main product (90-95%) - is a crumbling product, unsoluble in organic solvents, and is called a sponge polymer. The chemical structure of the sponge polymer of isoprene was examined by ozonolysis. The ozonide was split in dioxane at ordinary pressure by catalytic reduction of a palladium catalyst which was applied to barium sulfate. Levulin aldehyde and levulinic acid were detected, whose quantity amounted to 63.7% of the carbon skeleton. They formed from parts of the macromolecule of the

Card 1/3

Investigation of the Chemical Structure of
the Sponge Polymer of Isoprene

S/079/60/030/007/008/020
B001/B063

sponge polymer, in which the isoprene molecules were linked in the positions -1,4-1,4-. Besides, succinic, acetic, and formic acids were found in the products of ozonolysis. The last-mentioned acid may have formed from the parts containing the links 1,2 or 3,4. The modes of formation of the succinic and acetic acids could only be assumed: the succinic acid may have formed from the groups -1,4-4,1 and the acetic acid as an anomalous product of ozonolysis. Both acids have possibly formed as by-products from the groups -1,4-1,4-. As no acetonyl acetone was found in the catalytic reduction of the ozonide, it may be assumed that in the macromolecules of the sponge polymer the isoprene molecules are not bound in the groups -4,1-1,4- (Table 1). Thus, it was possible to determine 63.7% of the carbon skeleton in the above-mentioned reduction with the catalyst Pd/BaSO₄. The carbon skeleton was formed by binding of the isoprene molecules in the -1,4-1,4- position. 14.5% of the carbon skeleton of the sponge polymer were determined in the acetic and succinic acids which are by-products of the groups -1,4-1,4-. There are 3 figures, 3 tables, and 12 references: 8 Soviet and 3 German. ✓

Card 2/3

Investigation of the Chemical Structure of
the Sponge Polymer of Isoprene

S/079/60/030/007/008/020
B001/B063

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad
State University) ✓

SUBMITTED: July 1, 1959

Card 3/3

RABINOVICH, D.K.

RABINOVICH, D.K.

Method of objective observation on the regeneration of hemopoietic organs and duration of the presence of erythrocytes of the transfused blood in the recipient. Klin.med., Moskva 18 no.10:68-69 Oct 50. (CJML 20:4)

1. Of the Laboratory of the Infectious Diseases Clinic (Head--Docent E.F.Grobman), Vinnitsa Medical Institute, Vinnitsa.

RABINOVICH, David L'vovich, inzhener; UDAL'TSOV, A.N., glavnyy redaktor
BALASHOV, S.I., inzhener, redaktor

[Technology of preparing reinforced concrete architectural
elements from stiff mixtures] Tekhnologiya izgotovleniia
zhelezobetonnykh arkhitekturnykh detalei iz zhestkikh smesei. Tema
36, no. I-56-125. Moskva, Akad. nauk SSSR, 1956. 15 p.
(MLRA 10:5)

(Precast concrete)

RABINOVICH, David L'vovich; SOKOLOV, Vladimir Aleksandrovich; SOROKER,
V.I., red.; KIRYUSHIN, V.I., otv. za vypusk; SUKHAREVA, R.A.,
tekhn.red.

[Technology of the immediate stripping of forms from precast
reinforced concrete elements and details] Tekhnologiya nemedlennoi
raspalubki sbornyykh zhelezobetonnykh konstrukttsii i detalei. Moskva,
1959. 54 p. (Moskovskii dom nauchno-tekhnicheskoi propagandy. Pere-
dovoi opyt proizvodstva. Seriya: Stroitel'stvo, no.7).
(MIRA 13:11)

(Concrete construction--Formwork)

RABINOVICH, D. L.

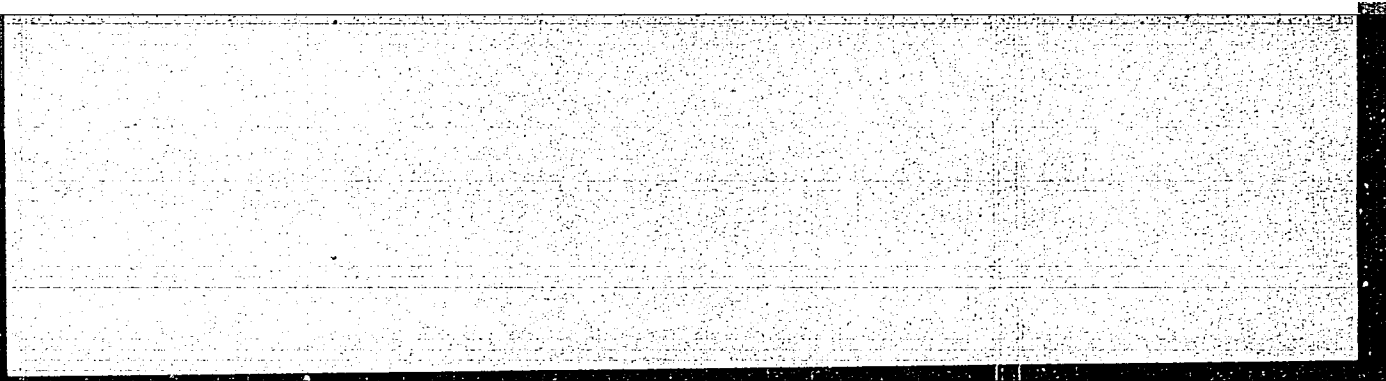
Cand Tech Sci - (diss)_"Studies on the technology of forming and direct vaulting cell /raspalubka/ of reinforced-concrete designs." Moscow, 1961. 21 pp; (Academy of Construction and Architecture USSR, Scientific Research Inst of the Organization, Mechanization, and Technical Assistance in Construction); 250 copies; price not given; (KL, 6-61 sup, 224)

SOROKER, V.I., doktor tekhn.nauk, prof.; RABINOVICH, D.L., kand.tekhn.nauk

Strength and deformability of compacted concrete mixes.
Bet. i zhel.-bet. 8 no.11:503-507 N '62. (MIRA 15:11)
(Concrete--Testing)

"APPROVED FOR RELEASE: Tuesday, August 01, 2000

CIA-RDP86-00513R001343



APPROVED FOR RELEASE: Tuesday, August 01, 2000

CIA-RDP86-00513R0013438

RABINOVICH, D.M.

NARUTSKAYA, L.A., inzhener; GUBERT, S.V., inzhener; RABINOVICH, D.M., inzhener.

Methods of preventing flaking in rolled metal. Stal' 16 no.12:1097-1098
D '56. (MIRA 10:9)

1. Novo-Tazil'skiy metallurgicheskiy zavod.
(Rolling (Metalwork)) (Steel--Defects)

Research Work of the New Tagil Metallurgical Works
AUTHOR: Nagovitsyn, D.F. and Rabinovich, D.M.

133-7-27/28

TITLE: Research Work of the New Tagil Metallurgical Works.
(Issledovatel'skiye raboty Novo-Tagil'skogo Metallurgicheskogo Zavoda)

PERIODICAL: Stal', 1957, no.7, pp. 668 - 670 (USSR).

ABSTRACT: A. Operation of blast furnaces on fluxed sinter. The influence of increasing the basicity of sinter on its properties was investigated. The mechanical strength and the reducibility of sinter increase up to basicity 0.6; on further increase of basicity the above properties deteriorate. The coefficient of utilisation of the working volume of blast furnaces increased by 6.2%, coke rate decreased by 8.2%. In order to increase further the basicity of sinter, improvement in size distribution of materials sintered is required.

B. The production of pig iron with oxygen-enriched blast. Tests with oxygen-enriched blast (22, 23 and 24% O₂) were carried out. Blast volume was decreased so as to obtain the same amount of top gas as with ordinary air. An increase in the output by 4.4, 6.7 and 7.7%, respectively, was obtained.

C. Smelting of ferro-manganese using oxygen-enriched blast. Details given in Stal', 1957, no.7, pp. 580 - 584.

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133-7-27/28

Research work of the New Tagil Metallurgical Works.

D. A study of reducing processes and the distribution of gas flow in blast furnace stacks. The work was carried out on 4 levels of a furnace of 1386 m³ of working volume by vertical probing - lowering and retention of specimens of sinter and ores of a given size grading with simultaneous reduction in a laboratory apparatus. From the experimental results obtained (studies were started in 1952) the following conclusions were made: a) during operation with increased ore loads i.e. with low coke rates a more uniform distribution of materials and gases and widening of the zone of moderate temperatures is obtained; simultaneously, an increase in the CO₂ concentration

in the upper third of the stack and slowing down of reduction processes in this part take place. This limits the possibility of improving the utilisation of gases with increasing height of the furnace. b) As with operation on low coke rates, the temperature in the middle levels of the furnace is determined by the thermal state of lower levels, it can be utilised as a sufficiently reliable indicator of the thermal state of the furnace in a scheme of automatic control of the furnace operation.

c) Shift of the zone of active indirect reduction towards lower furnace levels indicates the necessity of a corresponding increase of the bosh diameter. There is no danger of the

Card2/7

Research Work of the New Tagil Metallurgical Works. . . 133-7-27/28

development of peripheral flow of gases. d) An increase in the size of sinter does not cause any substantial decrease in its reducibility, but it considerably improves burden permeability. e) The life of normal lining in the lower part of the stack in NTZM blast furnaces was usually 2 - 2.5 years. In June, 1956, this part of the stack (No.3 furnace) was lined with carbon blocks and filling of seams with carbon paste from foundry coke 0 - 0.5 mm fraction (50%), pitch (22.5%) and anthracene oil (27.5%). Cooling of the carbon lining (7.2 mm) was done by 3 rows of plate coolers. Chromel-alumel thermocouples were embedded in carbon blocks. After 6 months, the carbon lining retained its designed profile. Investigations indicated that on transfer to carbon lining the following should be taken into consideration: 1) the thickness of lining can be reduced to 500 mm, 2) a temperature of 1 200 °C is safe for carbon blocks and an intensive cooling is not required, 3) seams between blocks should be filled with rapidly-hardening paste and blocks should be ground to a curvature not exceeding 1 mm on a length of 500 mm.

F. Smelting practice of metal for wheels. In order to decrease defects the following conditions are recommended: de-oxidation with silico-calcium instead of aluminium, metal temperature before tapping 1 610 - 1 620 °C, ingots 3.6 tons should be cast in 4 - 6

Card3/7

Research Work of the New Tagil Metallurgical Works.

133-7-27/28

min, steel should contain not less than 0.25% of Si.

G. The control of temperature of liquid steel with immersion thermocouples. Some data on the rate of heating of the bath of open hearth furnaces and temperature changes caused by various additions were collected in tables for guidance as due to a shortage of thermocouples and silica sheaths measurements are carried out only during the production of the more expensive steels.

H. Experiments in the application of sinter in open hearth furnaces. Tests indicated that using sinter, its consumption increases by 10 - 13% in comparison with ore, the consumption of lime decreases, de-phosphorisation improves the duration of heat decreases, the quality of metal and the durability of the bottom and banks does not change.

I. The use of oxygen in open hearth furnaces. Oxygen addition to flame (oxygen-enrichment 24.5%) decreased the duration of heats by 14.6%; furnace output increased by 15.1%; consumption of fuel decreased by 15.8%.

J. An investigation of the operation of a 140 ton open hearth furnace with an application of compressed air. Additions of compressed air to flame 1 200 - 1 500 m³/hr increased the output by 9.5 - 11.5%; the durability of roof increased by 6%.

Card4/7 K. A study of the efficiency of washing checkers. Washing of

Research Work of the New Tagil Metallurgical Works.

133-7-27/28

checkers (from forsterite bricks) with water under 10 atm. pressure 1 - 2 times per month and blowing with steam of under-checkers space without stopping the furnaces was tried with satisfactory results.

L. The use of magnesite powder from slurries. Tests of magnesite powder consisting of 50% of 0.1 mm fraction for fettling walls and banks indicated that it can be used for the purpose, providing it does not contain too much dust.

M. An improvement in the technology of production of rails. The use of oxygen caused a sharp increase in the flake sensitivity of rail steel. Drying of oxygen to 0.98 g/n m³ considerably improved steel quality; the proportion of flake-sensitive steel decreased to 0 - 2.0%. Studies of calibration of roll passes for rails P-50 and P-43, differing in the height of starting semis led to the following conclusions: a) hair cracks on rails as a rule are related to cracks in ingots and only seldom to rolled gas bubbles; b) the highest proportion of hair cracks is obtained on rails rolled from the top part of ingots; c) calibration of passes characterised by the highest deformation in height in the middle of rail foot and a sharp turn of flanges in trapezoidal passes (i.e. calibration of P-50) considerably helps in decreasing the size of hair cracks. The use of the new

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Research Work of the New Tagil Metallurgical Works. 133-7-27/28

calibration for P-43 rails decreased the proportion of rejects due to hair cracks from 2.43% to 0.64%. Complete freedom from flakes was obtained by rolling rails from cold blooms which passed an intermediate cooling in piles in the reduction shop.

N: A decrease in defects on beams of a large cross-section. An investigation of the technology of production of the beam 38T310 indicated that defects of ingots cause corresponding defects on beams. The dressing of semis before final rolling decreased the proportion of rejects 2 - 3 times.

O: Some new schemes for rolling ingots on a mill 1150. Rolling of 6.7 ton and 5.58 ton ingots was speeded up by decreasing the number of passes from 15 to 13 (no details given).

P. Hard-facing of rolling rolls by welding. Welding apparatus A-384 designed by the Paton Institute was used. Before welding, rolls are pre-heated to 300 - 350 °C for 4 - 6 hours with a multi-flame gas burner. The results obtained indicated that welding with electrode wire 08A; 30X7CA and 3X2B8 produces an even welded-on layer. The use of 08A wire is possible without the preliminary pre-heating of rolls but the welded layer has a low hardness and is suitable only for non-working parts of roll passes.

Card6/7 Welding with electrode 30X7CA using flux AH-348 and the preliminary

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pre-heating of the roll produces a layer of considerable hardness. Welding with powder wire requires special welding practice, a considerable pre-heating of rolls and subsequent slow cooling and should be used only for passes undergoing hard wear.

R. An increase in the durability of ingot moulds. By blowing oxygen on the iron in the runner during tapping from the cupola, its temperature increases by 40 - 80 °C. This treatment decreased the size of graphite inclusions and together with the application of cast reinforcing bands increased the stability of ingot moulds by 3 - 15%; using Khalil pig iron best results were obtained with a chromium content of 0.08 - 0.1%. The consumption of moulds decreased by 7%.

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RABINOVICH, D.M., inzh.; GURFINKEL', O.L., inzh.; SEREBRYAKOV, V.S., inzh.

New technology for the hardening of rail ends. Stal' 20 no. 7:650
Jl '60. (MIRA 14:5)

1. Nizhne-Tagil'skiy metallurgicheskiy kombinat.
(Steel--Quenching) (Railroads--Rails)

S/130/61/000/010/002/004
A006/A101

AUTHORS: Rabinovich, D. M., Head of the rolling laboratory, Skakun, V. V.,
Head of the rail and structural mill shop, Shermeyster, M. S.,
Head of the department of heating devices

TITLE: Experiences in the production of high-wear-resistant rails

6-
PERIODICAL: Metallurg, no. 10, 1961, 25-26

TEXT: In order to bring about full heat treatment of rails, including both volumetric quenching and tempering, an experimental industrial unit was constructed at the Nizhne-Tagil' Plant in 1960. The unit consists of a high-speed section furnace and an oil quenching mechanism. The ten sections of the furnace are arranged in a line at 1,600 mm distance from each other and are covered with special drums containing water-cooled pipes to transport the rails along the furnace. Each section consists of a metal frame with a special refractory-lined chamber. The rails are heated by 8 double-conduct short-flame torches fuelled with coke gas, which are arranged alternately on both sides. The rails are moved back and forth within the furnace. The quenching unit consists of an oil tank over which a quenching traverse is fixed. The traverse

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is a metal structure with a built-in roller conveyer and a drive for lifting and dropping the structure into the tank. The following technological process was developed: the rails are supplied to the thermal span, placed onto the roller-conveyer and supplied to the quenching furnace. They are then placed by special guides between the beads of the upper conveyer roll. The rail moves along the furnace during 9 - 11 minutes. After heating to 890 - 920°C, it is supplied at 30 m/min speed to the receiving roller-conveyer of the quenching traverse where it is held in air for 30 - 60 sec. When a temperature of 820 - 860°C has been reached the rail and the traverse are dipped into the quenching oil tank for 4 - 6 minutes. After the oil has dripped off, the finished rails are packed by 3 - 4 pieces and supplied to the isothermal furnace for tempering during 2 hours at 480 - 520°C. The quality of such heat-treated rails is very high. Comparative values for the properties of heat-treated and not heat-treated rails are shown in the table below:

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Experiences in the production ...

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Properties	Rails	
	heat-treated	not heat-treated
Yield limit, kg/mm ²	79.5	44.0
Ultimate strength, kg/mm ²	123.0	83.5
Relative elongation, %	11.0	11.7
Relative constriction, %	33.5	15.8
Toughness at + 20°C, kgm/cm ²	3.7	2.0
Hardness HPB	3.2	3.9
Deflection during tests on the ram, mm	26.0	43.0
Wear resistance (from losses in the specimen weight), g	0.720	1.746

The costs of heat-treated rails exceed those of conventional rails by a factor of 3. There are 2 figures and 1 table.

ASSOCIATION: Nizhne-Tagil'skiy metallurgicheskiy kombinat (Nizhne-Tagil' Metallurgical Combine)

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S/133/61/000/002/008/014
A054/A033

AUTHORS: Makayev, S.V., Engineer, Gubert, S.V., Engineer, and Rabinovich,
D.M., Engineer

TITLE: Volumetric Hardening of Rails in an Industrial Pilot Installation

2/-
PERIODICAL: Stal', 1961, No. 2, pp. 156-159

TEXT: Under the present operational conditions the service life of rails made of M75 type steels produced without heat treatment is insufficient. The strength of the rails should be increased to 100-120 kg/sq mm and their yield point to 80 kg/ sq mm and up, without deterioration of the plastic properties. This can be obtained either by alloying the rail steels or by a heat treatment consisting of volumetric hardening. Tests carried out at the Nizhne-Tagil Metallurgical Combine gave the following results: The properties of rails made of low-alloy steels without heat treatment were improved only slightly while the production became much more expensive. When the rails were made of alloy steels with a higher chromium and nickel content, their properties improved but the technological difficulties involved also
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raised the cost considerably. Rails made of vanadium steel, (0.30% V) - produced in 380-ton furnaces with top pouring, adding ferro-vanadium into the ladle show better properties than the conventional M75 steel rails:

	σ_s kg/sq mm	σ_B kg/sq mm	δ %	ψ %	a_K kg/sq cm
Vanadium steel	53-64	90-102	6-12	8-26	2.5-4.0
Conventional M75 type steel	48-55	82-95	7-9	15-22	2.0-2.5

Partly due to isothermal treatment of the rails, with small vanadium additions at 600-650°C, the cost of these steel rails is 1.5 times higher than that of M75 steel rails. Tests were also carried out with chrome-vanadium steels (Cr: 2.5-3.2%; V; 0.1-0.2%). For the rails of this alloy - without heat treatment - the following values were obtained:

σ_B kg/sq mm	σ_s kg/sq mm	δ %	ψ %
115-130	70-95	7-10.5	20-55

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Volumetric Hardening of Rails in an Industrial... A054/A033

This steel costs 31 rubles more than the M75 type and the rails made of it are twice as expensive as the conventional ones. However, tests carried out at the NTMK, in 1957-60, proved that rails with the required properties can be obtained from carbon-steel by volumetric hardening in oil with subsequent annealing. For this process a semi-industrial pilot installation has been designed, consisting of a 10-compartment, 50-ton furnace for rapid heating and a unit for oil-hardening. The furnace-compartments are arranged in one line, 1.600 mm apart. The spaces between the compartments are covered with drums under which water-cooled rolls for delivering the rails are mounted. Each compartment has eight two-conduit, short-flame turbulence burners of VNIIMT -design for coke-gas burning. The most uniform heat distribution in the furnace can be obtained by a chess-board arrangement of the burners on the upper and the lower level of each compartment, the thermal load being distributed between the upper and the lower burners at a 88-12% ratio. The furnace is provided with shelves and guiding mechanisms for feeding the rails to and discharging them from the furnace, moreover with control and measuring apparatus, sound and flashlight indicators. Uniform heating of the rails over their whole length can be obtained by continuously moving them forward and backward at a rate of 4 m/min. The hardening container of 30-ton capac-

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 Volumetric Hardening of Rails in an Industrial... A054/A033

ity is equipped with oil conduits, air piping for the mixing of oil, supports for the rails, steam pipes for producing a vapour curtain when the oil is combusted. Above the container a welded metal beam construction is suspended. It is supplied with a roller runway and drive for lowering and lifting the beam. On the beam a cover is loosely fitted, which covers the container when the beam is lowered. After hardening the rail is removed by a winch from the beam structure onto a shelf provided with equipment for the removal of oil vapours. A bridge crane then carries it into the furnace for annealing. The uniformity of heating was checked by electronic potentiometers, indicating that the heating of the rails in the furnace is constant. The temperature differential along the rail does not exceed 80°C (50°C on an average), above $900-950^{\circ}\text{C}$ it even decreases to 30°C . The temperature drop can further be reduced by discharging the rails more quickly and making the furnace longer. Fairly uniform properties of the metal can be obtained by hardening the rail head at temperatures above A_c . The heat treatment is carried out under the following conditions: c_3

Temperature of heating the rail	
in the compartment furnace, $^{\circ}\text{C}$	900-920

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Volumetric Hardening of Rails in an Industrial... A054/A033

Duration of heating, min	9-11
Holding time in air, sec	30-70
Hardening temperature, in oil, °C	830-850
Oil temperature, during hardening the rail, °C	≤ 110
Duration of hardening, min	5-6
Annealing temperature, °C	450-480
Holding time for annealing, hours	2

The heat treatment installation ensures such a straightness of the rails which cannot be obtained by any other equipment. Flat bending in vertical and horizontal planes does not exceed 80 mm and no torsion around the longitudinal axis was observed. The rails can be heated at a rate of 2°/sec between 20 and 900°C, despite the presence of screw holes. Cracks formed only after hardening in oil containing much water and when annealing was delayed after hardening. The comparison of characteristics of heat-treated and non-heat-treated rails show that the former are superior, attaining the values found in chrome-vanadium steel rails: ✓

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Volumetric Hardening of Rails in an Industrial... S/133/61/000/002/008/014
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	σ_s kg/sq mm	σ_B kg/sq mm	$\delta\%$	$\psi\%$	a_K kgm/sq cm	d_B mm
volumetric-hardened rails	79.5-97.0	126-131	11-8.3	41.5-33.5	3.7-4.5	3.2-3.3
rails without heat treatment	44.0-45.4	83.5-87	11.7-9.5	15.8-19.2	2.0-2.2	3.9-4.0

The test rails were laid on the Sverdlovsk track, in heavy-duty sectors, in curves, and show great resistance to wear. Equipment for the heat treatment of the total Soviet rail production (1.2-1.5 million tons a year) for rails 25 m long, will be designed. The heat treatment costs about 10 rubles/ton, so that it is much cheaper than using alloyed steels. There are 5 figures and 2 Soviet references.

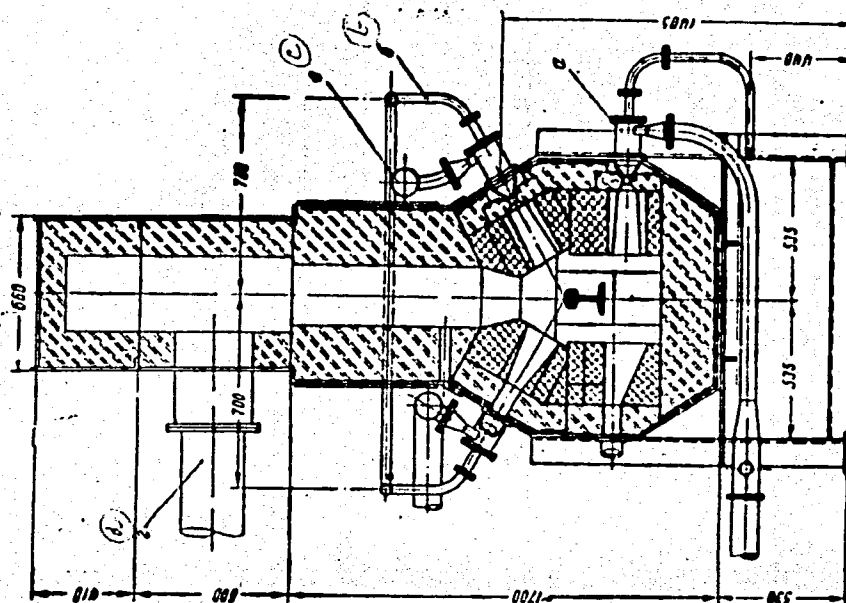
ASSOCIATION: Nizhne-Tagil'ski'y metallurgicheskiy combine (The Nizhne-Tagil Metallurgical Combine)

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Volumetric Hardening of Rails in an Industrial ...



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Figure 2:

Cross section of one of the ten compartments of the furnace for high-speed heating

a - burner; b - air pipe; c - gas pipe; d - smoke pipe

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89973

S/133/61/000/003/007/014
A054/A033

1.1300

also 1454, 1045

AUTHORS: Makayev, S. V., Engineer; Skryabin, N. P., Engineer;
Rabinovich, D. M., Engineer; Shadrin, V. A., Candidate of
Technical Sciences; Korshikov, V. D., Engineer

TITLE: Mastering the rolling of light-weight sections of low-alloy
steels

PERIODICAL: Stal', no. 3, 1961, 240 - 245

TEXT: The new light-weight beams and channels (ГОСТ - GOST 8239-56
and GOST 8240-56) made of low-alloy steel have not the same strength as
the corresponding sections made of carbon steel. In order to obtain the
required strength, larger sizes of these sections are used and in this
way the savings otherwise effected are partly lost. This draw-back is
compensated for by improving the mechanical properties of the steels of
which the light-weight sections are made. In order to find suitable
methods to this end, tests were made with the most current low-alloy steels:
09Г2 (09G2), 15ХЧА (15KhSND) and compared with the СТ.3 (St.3) grade
steels. The tests were carried out with the cooperation of L. I. Putil't-

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Mastering the rolling of

sev, Yu. D. Korkodinow, S. V. Gubert, V. V. Skakun, V. V. Kutayev and V. S. Serebryakov. Beams and channels were rolled on the model "800" rolling mill. The parameters of the electromotors, the metal pressure on the rolls, the rolling temperature and the accuracy of the sections obtained were closely controlled. The same roll-pass designs were used as in the conventional process. The bloom were heated to 1280°C, rolled first in a "900" mill, next in the "800" mill, (with 3 - 5 passes on the first and 3 passes on the second stand) and then processed in the finishing mill. The roughing stands were actuated by a d-c 6200 hp motor (80 - 160 rpm, 55.5 TM rated torque), while the finishing stand was driven by a 2500 hp motor (rated torque: 22.4 TM). The energetic parameters were recorded on the tape of an OT-24 (OT-24) oscillograph, the metal pressure on the roll was registered by special YW4M (UICHM) dynamometer with wire pickups. The rolling temperature after the "900" stand was registered by a photoelectric pyrometer, before the finishing stand by a radiation pyrometer. Based on the test results it was found that the load on the motor increased by about 10 %, the rolling pressure by about 25 %, the specific electric power consumption by about 10 - 20 %, when rolling light-weight sections of low-alloy

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steels as compared with carbon steels. It was found, as regards temperature conditions, that low-alloy steels possess a higher deformation resistance at the final (lower) rolling temperatures, (750 - 850°C), than carbon steels. Therefore additional care has to be taken in adjusting the stand to obtain the required dimensions of the section. The standstills of the mill increased by about 10 % when rolling low-alloy steels, on account of changes of rolls and fixtures, so that the output of the mill dropped by about 10 %. However, the 09G2 steel, which is most suitable for light-weight sections, has a great strength in hot-rolled condition, as well as good welding properties and a lower ductility compared with St.3 steels. These properties of the 09G2 steel can still be improved by subjecting it to hardening and annealing at 580°C for 1,5 hours. As a result of heat treatment, the 09G2 steel obtains a fine grained ferrite-perlite structure; moreover, when annealed at 520°C, its strength increases further by about 10 - 20 %. 09G2 steel is also considerably tougher than the St.3 steels (after complete heat treatment its toughness exceeds that of St.3 steel at +20°C by 30%, at -40°C about three times.). Thus, with regard to the higher load of the motor and the reduced output of the mill, the production of light-weight sections from low-alloy steels will yield actual sav-

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ings for the national economy in the low-alloy-sections are subjected to the heat treatment indicated. There are 8 figures and 4 tables. ✓

ASSOCIATION: Nizhne-Tagil'sk metallurgicheskiy kombinat (Nizhne-Tagil Metallurgical Combine) and Ural'skiy institut chernykh metallov (Ural Institute of Ferrous Metals)

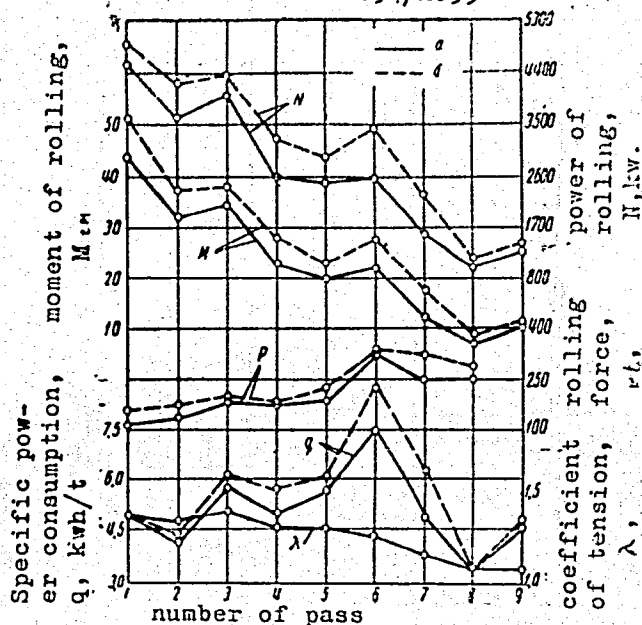
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Mastering the rolling of

Figure 4: The change in the parameters of rolling light-weight beams (24) from St.3kp (carbon) and 15KhSND (low-alloy) steel, a,b, per pass, on the "800" stand.



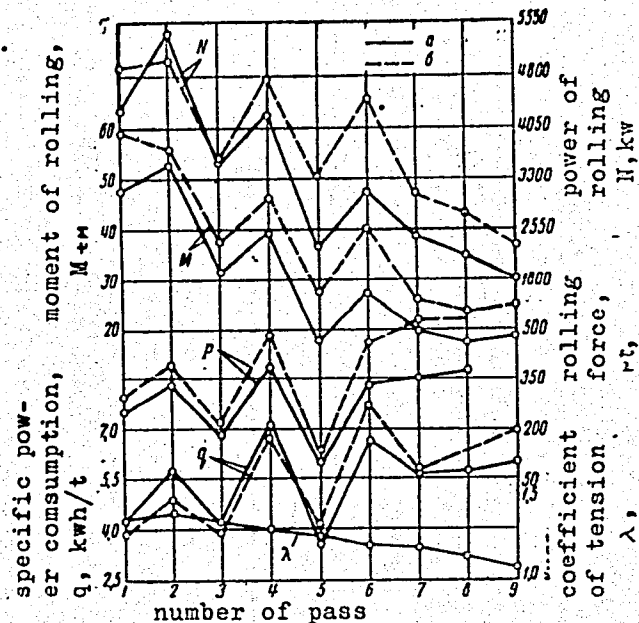
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Figure 5: Idem, for beams 30.



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